

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
14 July 2005 (14.07.2005)

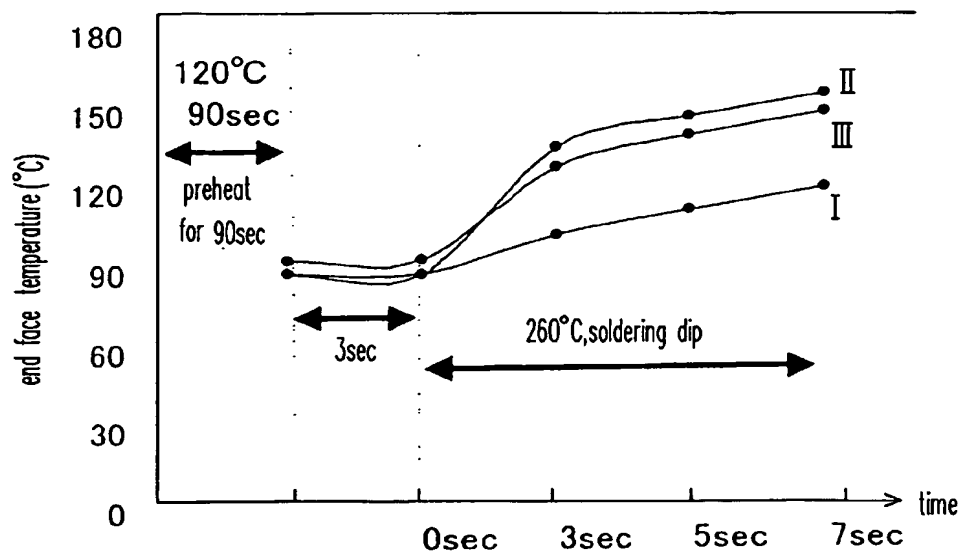
PCT

(10) International Publication Number
WO 2005/064228 A2

- (51) International Patent Classification⁷: **F21V**
- (21) International Application Number:
PCT/IB2004/004120
- (22) International Filing Date:
15 December 2004 (15.12.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
2003-425035 22 December 2003 (22.12.2003) JP
- (71) Applicant (for all designated States except US): **MAT-SUSHITA ELECTRIC WORKS, LTD.** [JP/JP]; 1048, Oaza-Kadoma, Kadoma-shi, Osaka 5718686 (JP).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **KAMBARA, Ya-sushi** [JP/JP]; c/o 1048, Oaza-Kadoma, Kadoma-shi, Osaka 5718686 (JP). **MOTOYAMA, Akira** [JP/JP]; c/o 1048, Oaza-Kadoma, Kadoma-shi, Osaka 5718686 (JP). **NAKA-JIMA, Masayuki** [JP/JP]; c/o 1048, Oaza-Kadoma, Kadoma-shi, Osaka 5718686 (JP).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**
— without international search report and to be republished upon receipt of that report

[Continued on next page]

(54) Title: LIGHTING DEVICE OF DISCHARGE LAMP, ILLUMINATION APPARATUS AND ILLUMINATION SYSTEM



(57) Abstract: A lighting device for a lamp device is provided. The lighting device includes a circuit board and film capacitors packaged on the circuit board by using leadless flow solders. Each film capacitor comprises polypropylene films and lead wires, and a material of the lead wires has a thermal conductivity lower than a thermal conductivity of copper, and terminals and internal materials of the film capacitors are leadless. A diameter of the lead wires is 0.6~ (mm) or less, a cross-sectional area is 35mm² or less, and a temperature at a terminal end of the lead wires in the film capacitors during a soldering process is 130°C or less.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.